

# Newsletter Belgian Solar Observers

Results and news for solar observers

Volume 15

Number 176

October 2010

Franky Dubois Poelkappellestraat 57 langemark 8920

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## Content Newsletter

### Graphics and relative number for this month

Daily Wolfnumbers by the members

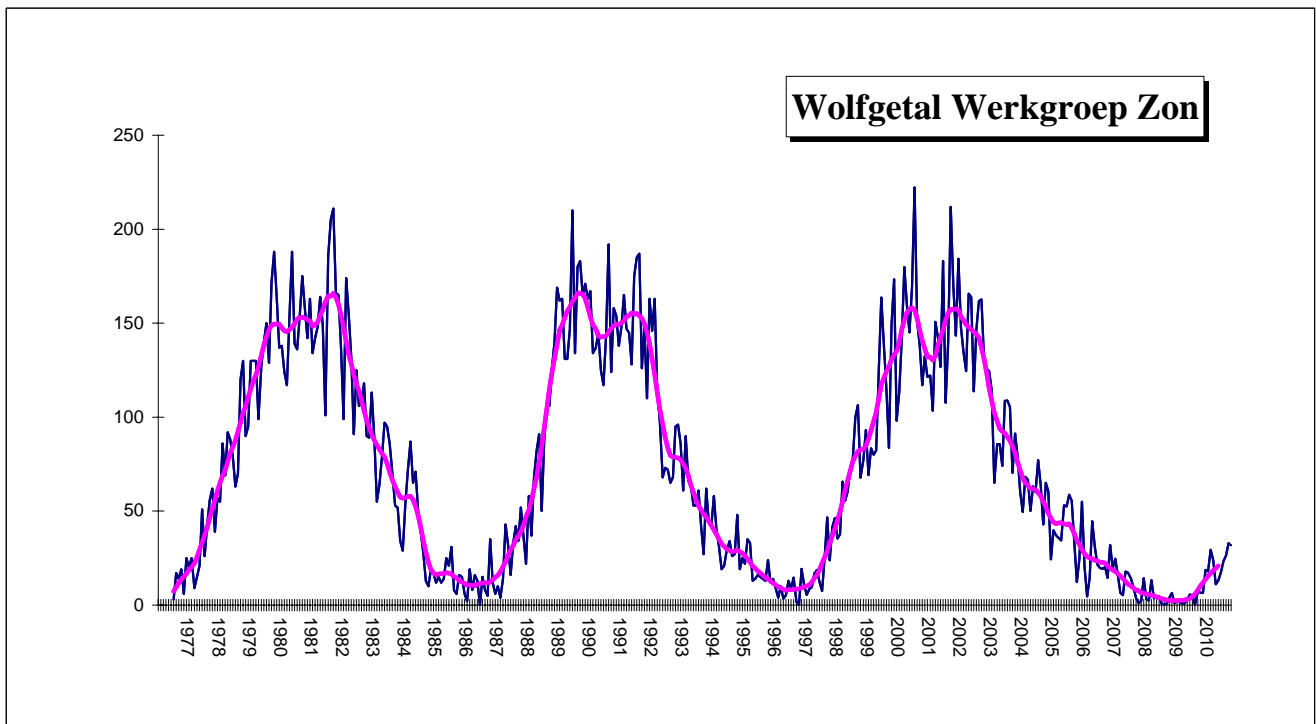
Monthly sunspot report

Polar faculae and CV numbers

Prominence numbers by the members

Monthly prominence report

Photo album and drawings



### Mean of October observations

Groups :	N	1,68	Wolfnumb N	21,7	Beck :	192,5
	S	0,81	S	10,2	CV	35,9
	N+S	2,48	N+S	31,9		
343 observations	25 observers					



# Sunspotnumbers VVS Belgium

Month: **October 2010**

Day	GROUPS			WOLFNUMBER			RE'	CV	OBS
	N	S	N+S	N	S	N+S			
1	3	0	3	36,1	0	36,1	116	38	14
2	2	0	2	28,3	0	28,3	60	40	4
3	2	0	2	26,7	0	26,7	183	32	15
4	2	0	2	20,5	0	20,5	50	27	8
5	2	0	2	10,9	0	10,9	8	2	15
6	0	0	0	0	0	0	0	0	2
7	0	0	0	0	0	0	0	0	5
8	0	0	0	0	0	0	0	0	17
9	0	1	1	0	6,9	6,9	3	1	16
10	0	1	1	0	12,6	12,6	67	6	15
11	0	1	1	0	11,5	11,5	67	8	17
12	0	1	1	0	12,3	12,3	60	7	16
13	1	1	2	6,9	14,9	21,8	100	21	8
14	1	1	2	12,0	15	27,0	94		1
15	1	2	3	10,9	28,3	39,2	270	61	5
16	1	2	3	11,0	33,5	44,5	289	53	10
17	2	2	4	21,9	32,5	54,4	330	57	12
18	3	2	5	31,2	30	61,2	370	52	13
19	5	2	7	44,1	24,9	69,0	417	69	14
20	3	2	5	30,0	17,9	47,9	286	53	14
21	2	1	3	24,9	11,1	36,0	201	44	18
22	2	1	3	22,2	16,9	39,1	211	43	8
23	2	1	3	27,4	10,8	38,2	157	41	5
24	3	1	4	41,7	11,2	52,9	395	53	18
25	3	1	4	51,8	9,4	61,2	444	61	17
26	3	1	4	47,7	10,7	58,4	528	55	8
27	1	1	2	30,8	6,3	37,1	420	56	7
28	1	0	1	40,3	0	40,3	224	55	6
29	2	0	2	28,9	0	28,9	238	44	7
30	2	0	2	33,2	0	33,2	207	54	15
31	3	0	3	33,8	0	33,8	172	44	13
	<b>1,68</b>	<b>0,81</b>	<b>2,48</b>	<b>21,7</b>	<b>10,2</b>	<b>31,9</b>	<b>192,5</b>	<b>35,9</b>	<b>343</b>

Monthly mean: **31,9** Covering: **31/31** Spotless days: **3**  
 Observations: **343** Number of observers: **25**

**V.V.S. BELGIUM SOLAR SECTION FRANKY DUBOIS**

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**Observers:**

**E.De Ceuninck ; J.Janssens ; Publ obs Mira ; J.Bourgeois ; R.Dezeure ; F.Feys  
 H. De Backer; F.Dubois ; B.Taillieu ; J.Carels ; K. Dewaele  
 L.Meeus ; O.Steen ; KSB ; L.Claeys ; B.Thooris ; J.Bonse  
 J.Claes ; R.Verboven ; F. Van Loo ; A.T.Son ; H.Coeckelberghs**



# Prominence number Rp

## Belgian solar observers

Month: **October 2010**

Day	Q	Wedel	H	e	Rp	el. Obs	Stdev	OBS
1	2,9	2,2	7,1	12,3	<b>83,3</b>	2	15,2	9
2	2,8	2,5	5,5	12,5	<b>67,5</b>			2
3	2,6	2,4	5,6	9,3	<b>65,3</b>	1	14,9	9
4	2	3	4,5	9	<b>54</b>	1	11,3	3
5	3,6	1,9	3,3	3,8	<b>36,8</b>	1	10,4	5
6	1,5	4	6	11	<b>71</b>			1
7								
8	3,8	1,9	7,8	14,8	<b>92,8</b>	2	11,7	6
9	3,6	1,6	7,2	13,5	<b>85,5</b>	1	13,6	7
10	2,8	2,3	5,7	8,8	<b>65,8</b>	2	14	8
11	3	2,7	5,9	11	<b>70</b>	2	9,6	9
12	3,6	1,8	5,8	9,5	<b>67,5</b>	4	16,4	8
13	2,5	2,8	6,5	13	<b>78</b>	2	2,8	4
14								
15								
16	3,7	2,2	5,3	9	<b>62</b>	2	16,5	5
17	3,2	2,1	6,6	9	<b>75</b>	2	13,9	7
18	3,5	1,7	8,2	13,3	<b>95,3</b>		14,3	6
19	3,1	2,1	7,7	13,4	<b>90,4</b>		14	9
20	3,4	2,2	6,4	8,4	<b>72,4</b>	1	8,4	6
21	3,2	2,3	6,3	11,9	<b>74,9</b>	2	13,2	9
22	3,7	2,2	7	10	<b>80</b>	1	17,4	4
23	1	3	8	24	<b>104</b>			1
24	3,4	1,7	6	10,8	<b>70,8</b>	3	15,4	8
25	3,3	2,1	5,7	10,4	<b>67,4</b>		16,2	9
26	3,5	1,8	3	3	<b>33</b>	1	0	3
27	2	2	4	4	<b>44</b>			1
28	3,3	2,5	4,7	7,3	<b>54,3</b>	1	13,1	4
29	2,5	2	4,5	8	<b>53</b>		26,9	2
30	3,5	2	7,8	14	<b>92</b>	1	11,4	7
31	3,2	1,6	6,5	13,8	<b>78,8</b>	2	19,4	6
	<b>3,01</b>	<b>2,24</b>	<b>6,0</b>	<b>10,7</b>	<b>70,9</b>	<b>34</b>	<b>13,3</b>	<b>158</b>

Monthly mean: **70,9**    Covering: **28/31**  
 Observations: **158**    Number of observers: **11**

**V.V.S. BELGIUM SOLAR SECTION    FRANKY DUBOIS**

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**Observers:**

**Steen ; Dubois ; De Ceuninck ; Coeckelberghs ; Janssens ; Feys  
 Hamsch ; Claes ; G.Gubbels ; T.Spaninks ; R.Blondeel**

**Q : Seeing scale SIDC**

**W : transparency scale of Wedel , see <http://members.chello.be/j.janssens/>**

**H : number of prominence groups at the limb**

**e : total of individual prominences at the limb**

**Rp :  $H*10+e$**

**More info at : <http://members.chello.be/j.janssens/>**

**Different Relative Sunspotnumbers**

**Month : September 2010**

CV											Pettisindex SN					Intersol IS				
Date	F.Dubois	O.Steen	L.Meelus	J.Carels	J.Janssens	R.verboven	G.Gubbels	H.De Backer	D.Van Hesseche	Mean	G.Gubbels	F.Dubois	O.Steen	J.Carels	R.Verboven	Mean	F.Dubois	J.Carels	G.Gubbels	Mean
1	45	40	26	41			41	30	42	37,9	22	24		15	29	22,5	9	8	17	11,3
2	40	40								40,0		19		15		17,0	15			15,0
3	39	40			13	32	42	16	42	32,0	37	14		15	35	25,3	9		12	10,5
4	39	39						4		27,3		12		12		12,0	4			4,0
5	2	1	1	3			5	0		2,0	2	3		1	3	2,3	4	4	10	6,0
6																				
7			0					0		0,0										
8	0	0	0	0			0			0,0	0	0		0	0	0,0	0	0	0	0,0
9	2	1	1	1	0		0		0	0,7	0			3	1	1,3		1	0	0,5
10		9	5	5	7		4		5	5,8	11			12	12	11,7		3	5	4,0
11	10	7	11	4			10		4	7,7	13	11		12	11	11,8	3	2	6	3,7
12	8	7	5	4			7	10		6,8	11	13		11	11	11,5	6	1	4	3,7
13		1	15				48	20		21,0	22			1		11,5			6	6,0
14																				
15	99		37					48		61,3		45				45,0	10			10,0
16	102	42		42			42	36		52,8		51		45	51	49,0	20	17		18,5
17	101	42		45			74	44	38	57,3	63	60		45	59	56,8	23	17	25	21,7
18	89	49	46	39			44	43		51,7	78	48		54	52	58,0	23	17	34	24,7
19	104	34		43			109	53		68,6	87	66		38	60	62,8	29	19	35	27,7
20	95	62		32			44	31		52,8	65	43		32	35	43,8	8	8	19	11,7
21	87	60	27	31			29	27		43,5	35	30		30	32	31,8	3	5	13	7,0
22	87	30				27		27		42,8		31		30		30,3	5			5,0
23	62	32					29			41,0		34		33		33,5	8			8,0
24	72	55		60	46		48	45	48	53,4	60	53		59	60	58,0	18	13	16	15,7
25	86	57	63	60			51	50		61,2	103	80		60	57	75,0	22	14	39	25,0
26	79	67		69			34	35	46	55,0	82	63		45	68	64,5	22	24	29	25,0
27		66	42				52	63		55,8	56			58		57,0			22	22,0
28	56	56						52		54,7		45		45		45,0	13			13,0
29	17	55	54				49			43,8	45	54		35		44,7	14		10	12,0
30	57	58	58	49			51		50	53,8	39	20		39	35	33,3	15	12	14	13,7
31		39	64	58		9	51		45	44,3	42			30	41	35,0		11	17	14,0
##	60	36,7	27	32,6	17	22,7	38	32	32	37,1	42	36		29	34	33,9	12,3	9,8	16	12,11

**Becknumber**

Date	F.Dubois	O.Steen	L.Meelus	De Backer	J.Carels	G.Gubbels	E.De Ceuninck	D.Van Hesseche	R.Verboven	F.Feys	A.T.Son	J.Bourgeois	H.Coeckelberghs	Pbl Obs Mira	Mean	Date
1	116	64	196	188	76	92	116	76							116	1
2	80	40													60	2
3	148	152		268		224	164	152	240				112		183	3
4	52	52		44			52								50	4
5	12	4	4	0	12	28	4			0	4				8	5
6											0				0	6
7			0	0							0				0	7
8	0	0	0	0	0	0	0			0	0				0	8
9		12	4		4	0		0				4			3	9
10		82	24		32	148		24		0	148	74			67	10
11	74	111	24		37	185	16	74		0	111	37			67	11
12	82	74	16	74	37	111	16			16	111				60	12
13		4	69	81		159					185				100	13
14											94				94	14
15	214		399	196											270	15
16	394	200		410	216		170	344							289	16
17	388	237		312	443	414	144	375							330	17
18	260	249	335	422	460	652	280				299				370	18
19	413	246		376	453	787	243				402				417	19
20	298	160		261	275	618	156			222	296				286	20
21	169	155	222	213	189	292	148			148	296	182			201	21
22	206	148		169		148		264			333				211	22
23	154	106		212											157	23
24	347	399		402	444	315	334	326		326	611	444			395	24
25	385	432	503	366	412	655	388			490	368				444	25
26	484	366		745	669	456		445							528	26
27		337	290	662		378					432				420	27
28	300	300		216			80								224	28
29	174	198	297			162					360				238	29
30	164	174	267		273	174	48	202				356			207	30
31		248	123		199	172		164	236		110	124			172	31
##	213,7	169	163	267	235	287	139	198	247	#####	119	220	173	#####	192	

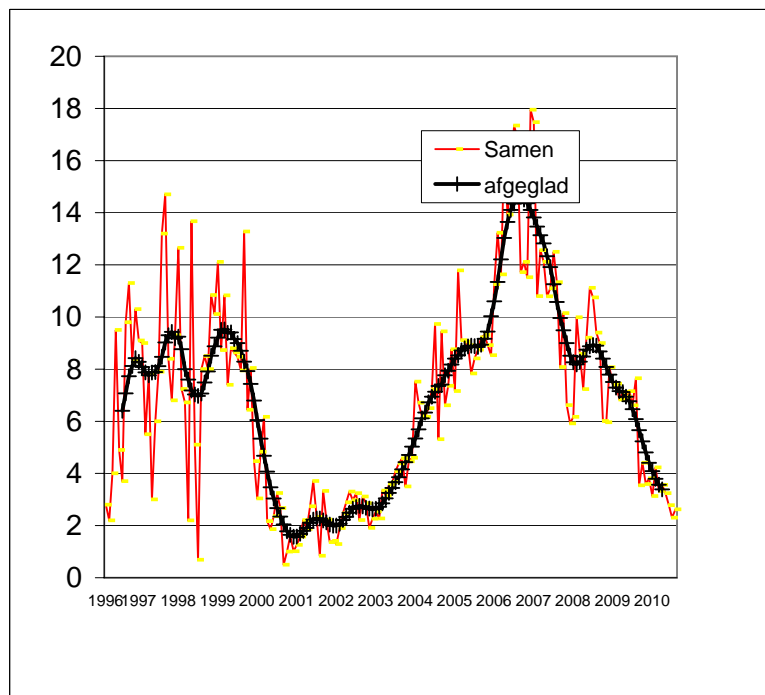
# Belgian Solar Observers

## Polar Faculae

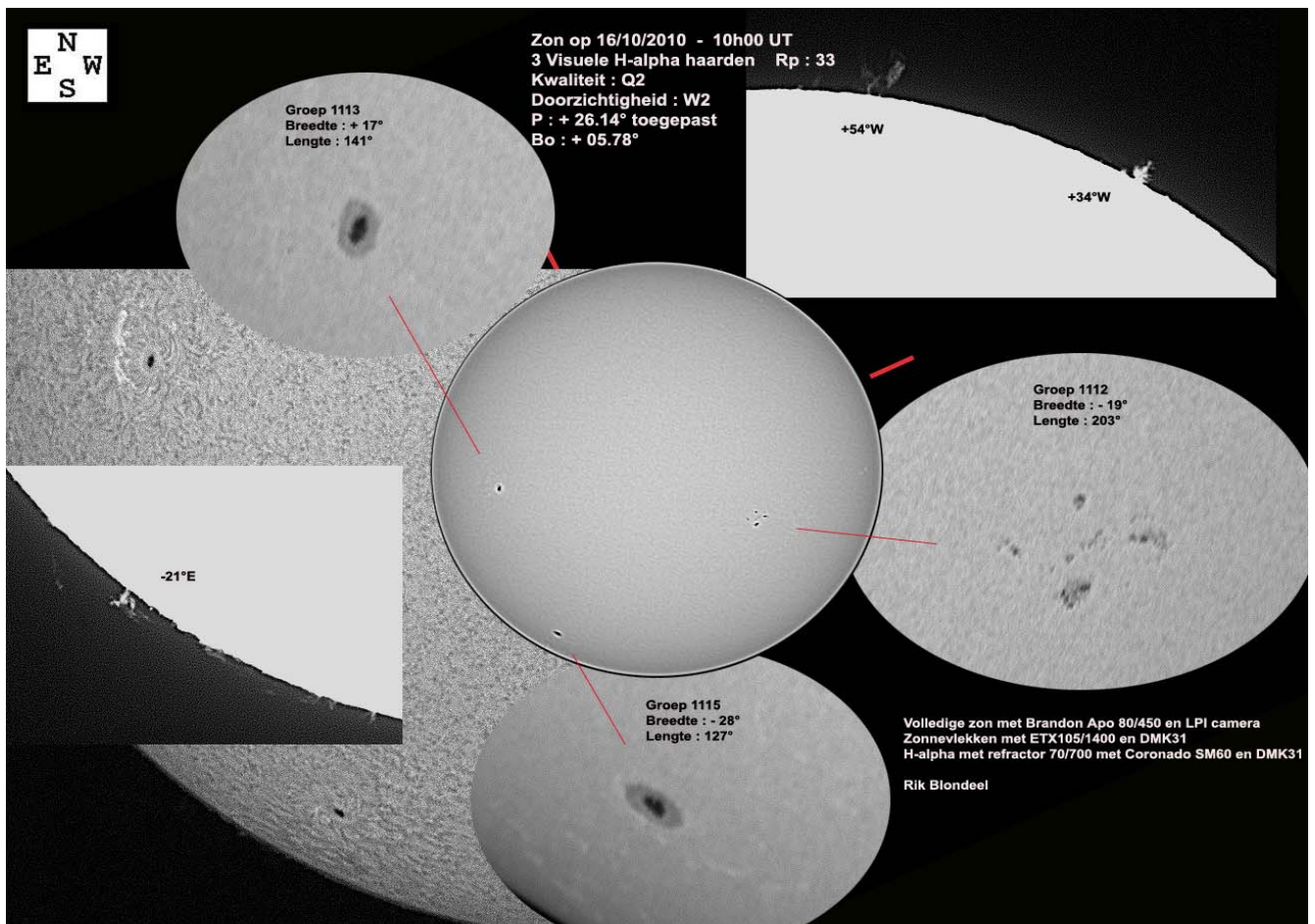
Month: October 2010

Date	Dubois 125mm F20			Steen 102mm F15			T.Spaninks 127mm F15			G.Gubbels 114mm F7,8			J.Carels			Janssen 200mmF10			M. Szulc 60mm F15			
	North	South	Q	North	South	Q	North	South	Q	North	South	Q	North	South	Q	North	South	Q	North	South	Q	
1										4	1	3.5										
2																						
3				0	0	3,0	0	0	4	2	1	3.5				1	0	3	9	6		
4	3	0	3																			
5	3	1	3							5	1	4.5										
6																			6	2		
7																						
8				2	2	3,5				6	0	4.5							9	2		
9				3	2	3,5				5	2	3.5				0	0	3				
10				3	1	3,5	0	0	3	5	1	3						2	8	3		
11							0	0	3	3	0	2.5	0	0	3				13	3		
12				1	0	3,5	0	0	3	5	2	3.5	1	1	3				15	3		
13							0	0	4	4	2	2.5										
14																						
15																			11	2		
16							0	0	4													
17	6	3	3				3	1	4	4	0	3							9	2		
18	6	1	3							4	0	3							8	3		
19							0	0	4	5	0	4										
20										4	2	3.5										
21										3	1	4	2	0	4				13	7		
22																						
23																			6	3		
24	8	3	4							5	2	3.5				0	0	3				
25										3	1	3.5										
26										3	1	3										
27										5	1	3										
28																						
29										3	1	2.5										
30	1	3	3							3	0	3.5							6	6		
31				0	0	3,5	0	0	4	4,0	1,0	3,5							5	2		
	4,50	1,83		1,50	0,83		0,3	0,1		4,0	1,0		1,00	0,33		0,33	0,00		9,08	3,38	##	

Obs of M.Szulc are not included in the monthly average !



N.O.A.A.	ZICHTBAAR		N.O.A.A.		MAX	MAX	classificatie							
Regio	van	tot	breedte	lengte	AREA	LENGTE	Macintosh							
11112	09-10-10	20-10-10	S19	202	0180	12	HRX	CRO	DRO	DSI	EAI	CSO	HSX	
11113	13-10-10	26-10-10	N17	141	0160	04	HAX	HSX	CSO	HAV	HSX			
11114	14-10-10	15-10-10	S21	244	0010	02	AXX	BXO						
11115	15-10-10	27-10-10	S28	125	0190	05	HSX	CSO	HSX					
11116	17-10-10	18-10-10	N22	178	0020	02	BXO	AXX						
11117	19-10-10	01-11-10	N22	60	0550	11	HSX	CSO	DSO	DSI	EHI	DKC	DHO	CHO
11118	18-10-10	20-10-10	N16	78	0010	01	AXX							
11119	24-10-10	27-10-10	N24	97	0020	04	BXO	CRO	AXX					
11120	30-10-10	06-11-10	N40	282	0120	13	BXO	CRO	ESO	CAO	BXO	AXX		
11121	04-11-10	10-11-10	S20	207	0090	13	AXX	CRO	EAI	ESI	ERO	EAO	AXX	
11122	06-11-10	10-11-10	N14	262	0030	07	CSO	CAO	DRO	BXO	AXX			
11123	10-11-10	17-11-10	S23	190	0080	06	DRO	DAI	CRO	BXO	AXX			
11124	10-11-10	19-11-10	N14	171	0260	13	DRO	CAO	DAO	DSI	ESI	ESO		
11125	11-10-10	16-11-10	N19	160	0030	05	CRO	BXO	CRO	BXO				

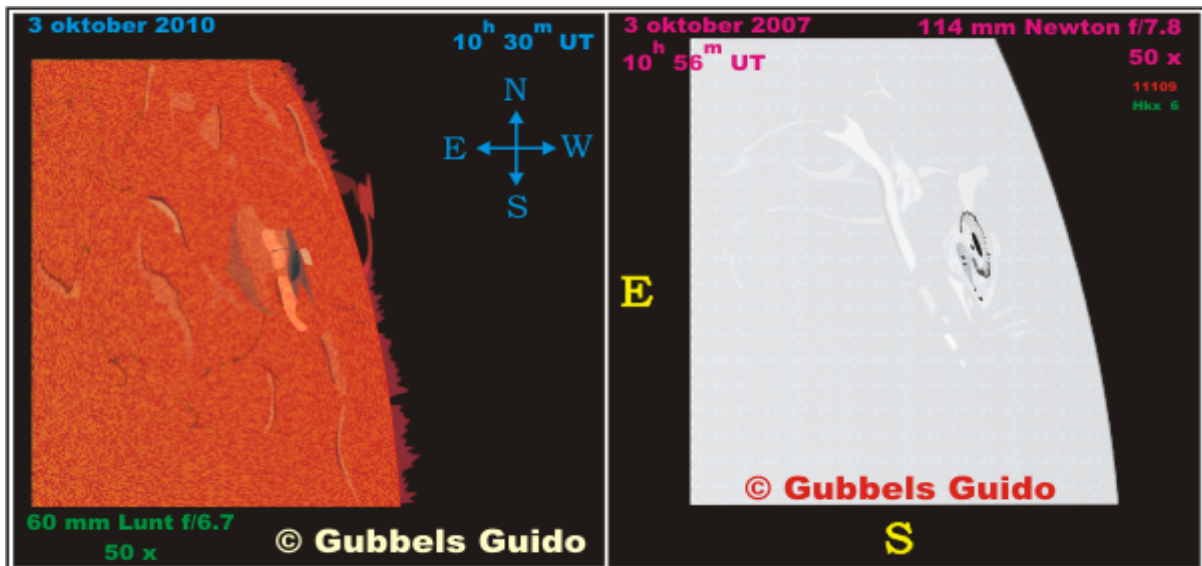
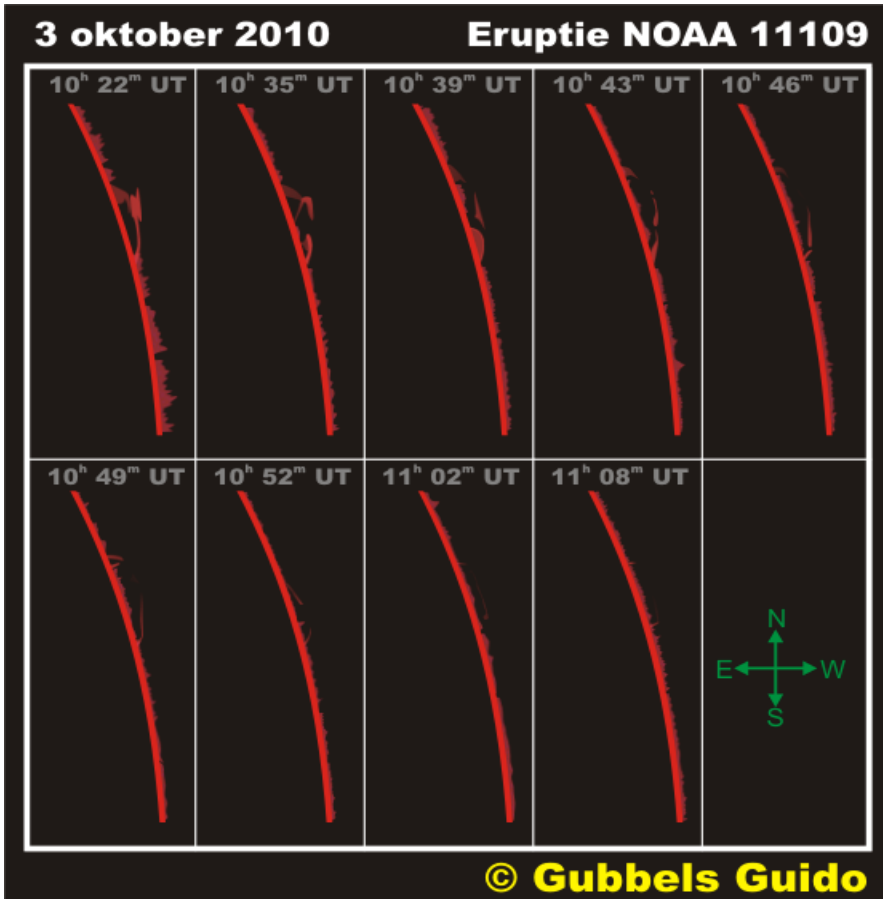




# Sunspot activity from organisations all over de world

Month : **September 2010**

Organisation	Wolf Total	Wolf North	Wolf South	Groups number	Faculae number	CV	Beck	Pettis index	Intersol	Area	prom MDF	prom Rp	Filam & plages	Radio flux	Naked eye
NOAA SWO	35,6													81,1	
SIDC	23,5														
Kanzelhöhe	21,7														
G.F.O.E.S France	21,8														0,21
BSO Belgium	32,9	19,2	13,7	2,5		37,5	276	34,9	15,9			78,4			
S.O.G.S.A.S. Switzerland	29,5			2,0											
BAA	28,8			1,96							3,75		2,96		
GsRSI Italy	39,3											80,7			
CV Helios Network						34,6									
AAVSO (Raw mean)															
Sonne Germany Preliminary	25,2			1,80			321,0								
O.A.A. Japan	28,9	16	12,9												
Solar Observer Society TOS Poland	31,5				3,11	31,9				445					



SIDC Weekly bulletin on Solar and Geomagnetic activity  
WEEK 512 from 2010 Oct 18

#### SOLAR ACTIVITY

Solar activity was low during the whole week. Only 4 C-flares were produced by active region NOAA11112, mainly on Oct.18 and 19. Thereafter, this active region decayed until it disappeared at the West limb on Oct. 21. A few other H-type spots were present but without any significant flaring activity. The only other noteworthy solar event was a filament ejection and associated semi-halo CME that took place near central meridian early on Oct. 22. A trans-equatorial coronal hole passed the central meridian on Oct.21 and was probably the source of a geomagnetic disturbance at the end of the week.

#### GEOMAGNETIC ACTIVITY

Geomagnetic activity was at quiet levels from Oct.18 until Oct.22. During that time period, the solar wind speed remained at a low speed of about 400km/s. Temporary negative excursions of the Bz component of the interplanetary magnetic field caused temporary unsettled conditions on Oct.19. Then, in the second half of Oct.22, the solar wind speed jumped to 680 km/s, due to a fast solar wind stream associated with the above-mentioned coronal hole. This caused unsettled to active geomagnetic conditions during two days, on Oct. 23 and 24, with short minor geomagnetic storm intervals mainly on Oct. 23. By the end of the week, the solar wind speed was slowly declining and the geomagnetic activity decreased to unsettled levels.

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SIDC Weekly bulletin on Solar and Geomagnetic activity  
WEEK 513 from 2010 Oct 25

#### SOLAR ACTIVITY

Solar activity was low during the whole week. NOAA AR 1117 was the most active, producing several C-class flares during the week, a C5.7 on Oct 31 was the strongest one. NOAA AR 1119 produced only a C 1.0 flare on Oct 26. CMEs erupted from the Sun every day of the week, but only one was Earth directed, occurring on Oct 26.

#### GEOMAGNETIC ACTIVITY

Geomagnetic activity was at quiet to unsettled levels the full week. The CME of Oct 26 arrived on Oct 30 but did not produce any geomagnetic disturbance.

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SIDC Weekly bulletin on Solar and Geomagnetic activity  
WEEK 514 from 2010 Nov 01

#### SOLAR ACTIVITY

Several sunspot groups were observed on the solar disc during the week: Catania numbers 56, 58, 59, and 60 (NOAA ARs 1117, 1120, 1121, and 1122 respectively). Catania sunspot group 56 (NOAA AR 1117) was observed at the west solar limb on November 1. The strongest flare it produced was a C1.1 flare peaking at 04:43 UT on that day. The sunspot group then disappeared behind the limb. Catania sunspot group 58 (NOAA AR 1120) was observed throughout the week. It did not produce any flaring activity above the B-level.

Catania sunspot group 59 (NOAA AR 1121, NOAA AR 1112 during the previous rotation) produced the most of the flaring activity during the week: 10 C-flares and 3 M-flares. It emerged from behind the solar east limb on November 4, but it produced 3 C-class flares even before (on November 3), when still located behind the limb. The strongest flare that occurred in this active region was the M5.4 flare peaking at 15:36 UT on November 6. Due to the position of this sunspot group close to the east limb, CMEs associated with flaring activity from this group did not arrive at the Earth and were therefore not geoeffective.

Catania sunspot group 60 (NOAA AR 1122) emerged on November 6. It did not produce any flaring activity until the end of the week.

A filament eruption near the solar central meridian in the southern hemisphere (around S40E15) was observed by SDO/AIA between 01:00 UT and 02:00 UT on November 3. It was accompanied by coronal dimmings and a post-eruption arcade. The corresponding CME was detected by SECCHI COR1 and COR2 coronagraphs onboard STEREO (SOHO/LASCO had a data gap). The corresponding ICME arrived at the Earth on November 8.

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SIDC Weekly bulletin on Solar and Geomagnetic activity  
WEEK 515 from 2010 Nov 08

#### SOLAR CONDITIONS

Solar flaring activity was on B and C flaring level during this week. Two active regions in each others vicinity were responsible for most of this activity: Catania sunspot group 59 (NOAA AR 1121) and group 62 (NOAA AR 1123), which developed strongly on Nov 11 inside the western part of NOAA 1121. At this time GOES X-ray flux showed repeated B and C flares. This must have been related to the magnetic flux emergence as observed in magnetogram movies from HMI/SDO. STEREO images indicated that a halo CME was associated with this activity. This continuous flaring activity remained until noon Nov 13 when solar activity returned to very quiet conditions again.

There were two filament eruptions in the northern hemisphere this week. A filament erupted from the north-east on Aug 8 around 15 UT. The associated CME that is observed in LASCO is not expected to be geoeffective. Another filament erupted early on Nov 13 in the northern hemisphere at central meridian. At first glance the associated CME seems to be directed northward. We expect only a small influence at earth (if there is any influence at all) of this CME.

#### GEOMAGNETIC CONDITIONS

Geomagnetic conditions have been quiet with active intervals on Nov 11-12. This could have been due to the arrival of CMEs of past solar activity. The IMF oscillated between +10 and -10 nT and the wind speed reached values of around 500 km/s. At around noon Nov 14 the wind speed increased further to 650 km/s.

ACE	Advanced Composition Explorer	<a href="http://www.swpc.noaa.gov/ace/MAG_SWEPAM_3d.html">http://www.swpc.noaa.gov/ace/MAG_SWEPAM_3d.html</a>
Ap	Equivalent amplitude geomagnetic activity index (0-400)	<a href="http://www.swpc.noaa.gov/info/glossary.html#a">http://www.swpc.noaa.gov/info/glossary.html#a</a>
AR	Active region	<a href="http://www.raben.com/maps/">http://www.raben.com/maps/</a>
B	Latitude	
B0	Heliographic latitude of the center of the solar disc	<a href="http://www.petermeadows.com/html/sunfromearth.html">http://www.petermeadows.com/html/sunfromearth.html</a>
BSO	Belgian Solar Observers	<a href="http://www.bso.vvs.be/index_en.php">http://www.bso.vvs.be/index_en.php</a>
Bz	Measure of the north/south orientation of the IMF perpendicular to the ecliptic plane	<a href="http://www.solarcycle24.com/solarwind.htm">http://www.solarcycle24.com/solarwind.htm</a>
C-flare	Small X-ray solar flare	<a href="http://spaceweather.com/glossary/flareclasses.html">http://spaceweather.com/glossary/flareclasses.html</a>
CH	Coronal Hole	<a href="http://solarscience.msfc.nasa.gov/feature3.shtml">http://solarscience.msfc.nasa.gov/feature3.shtml</a>
CME	Coronal Mass Ejection	<a href="http://solarscience.msfc.nasa.gov/CMEs.shtml">http://solarscience.msfc.nasa.gov/CMEs.shtml</a>
CV	Classification Value	<a href="http://www.cv-helios.net/">http://www.cv-helios.net/</a>
e	Individual prominence structures ("einzel")	<a href="http://users.telenet.be/j.janssens/Halpha/Halfaeng.html#Haarden">http://users.telenet.be/j.janssens/Halpha/Halfaeng.html#Haarden</a>
E	East	
el.	eliminated	
EUV	Extreme Ultra-Violet	<a href="http://en.wikipedia.org/wiki/Electromagnetic_spectrum">http://en.wikipedia.org/wiki/Electromagnetic_spectrum</a>
f	Number of sunspots ("fleck")	<a href="http://solarscience.msfc.nasa.gov/feature1.shtml#Sunspots">http://solarscience.msfc.nasa.gov/feature1.shtml#Sunspots</a>
F	Focal ratio	<a href="http://en.wikipedia.org/wiki/F-number">http://en.wikipedia.org/wiki/F-number</a>
g	Number of sunspot groups	<a href="http://www.nmm.ac.uk/explore/astronomy-and-time/astronomy-facts/solar-system/sunspots">http://www.nmm.ac.uk/explore/astronomy-and-time/astronomy-facts/solar-system/sunspots</a>
G	Geomagnetic Storm (level 1-5)	<a href="http://www.swpc.noaa.gov/NOAAscales/#GeomagneticStorms">http://www.swpc.noaa.gov/NOAAscales/#GeomagneticStorms</a>
H	Prominence Hearths	<a href="http://users.telenet.be/j.janssens/Halpha/Halfaeng.html#Haarden">http://users.telenet.be/j.janssens/Halpha/Halfaeng.html#Haarden</a>
IMF	Interplanetary Magnetic Field	<a href="http://pluto.space.swri.edu/image/glossary/IMF.html">http://pluto.space.swri.edu/image/glossary/IMF.html</a>
IS	Paderborn Intersol index	<a href="http://www.digilife.be/club/Franky.Dubois/sol.htm">http://www.digilife.be/club/Franky.Dubois/sol.htm</a>
ISN	International smoothed Sunspot Number	<a href="http://sidc.oma.be/news/106/sunspotnumberclarified.pdf">http://sidc.oma.be/news/106/sunspotnumberclarified.pdf</a>
k-factor	Personal reduction coefficient	<a href="http://sidc.oma.be/news/106/sunspotnumberclarified.pdf">http://sidc.oma.be/news/106/sunspotnumberclarified.pdf</a>
keV	Kilo electronvolt	<a href="http://nl.wikipedia.org/wiki/Elektronvolt">http://nl.wikipedia.org/wiki/Elektronvolt</a>
Km/s	Kilometers/second	
Kp	Geomagnetic activity index (0-9)	<a href="http://sidc.oma.be/educational/classification.php#geol">http://sidc.oma.be/educational/classification.php#geol</a> <a href="http://www.spaceweather.com/glossary/kp.html">http://www.spaceweather.com/glossary/kp.html</a>
L	Longitude	
L0	Heliographic longitude of the apparent center of the sun	<a href="http://www.petermeadows.com/html/sunfromearth.html">http://www.petermeadows.com/html/sunfromearth.html</a>
L1	First Lagrangian Point	<a href="http://en.wikipedia.org/wiki/Lagrangian_point">http://en.wikipedia.org/wiki/Lagrangian_point</a>
M-flare	Moderate X-ray solar flare	<a href="http://spaceweather.com/glossary/flareclasses.html">http://spaceweather.com/glossary/flareclasses.html</a>
MDF	Mean Daily Frequency	<a href="http://www.britastro.org/~solar/index.php?style=new">http://www.britastro.org/~solar/index.php?style=new</a>
MeV	Mega electronVolt	<a href="http://nl.wikipedia.org/wiki/Elektronvolt">http://nl.wikipedia.org/wiki/Elektronvolt</a>
mm	millimeter	
N	North	
NOAA	National Oceanic and Atmospheric Administration	<a href="http://www.noaa.gov/">http://www.noaa.gov/</a>
nT	nanoTesla	<a href="http://en.wikipedia.org/wiki/Tesla_(unit)">http://en.wikipedia.org/wiki/Tesla_(unit)</a>
Obs	Number of Observations	
P	Position angle between the solar axis and the north-south direction in the sky	<a href="http://www.petermeadows.com/html/sunfromearth.html">http://www.petermeadows.com/html/sunfromearth.html</a>
PF	Polar Faculae	<a href="http://bso.vvs.be/joinus_en.php">http://bso.vvs.be/joinus_en.php</a>
pfu	Particle Flux Unit	<a href="http://www.swpc.noaa.gov/info/glossary.html#particleflux">http://www.swpc.noaa.gov/info/glossary.html#particleflux</a>
PST	Personal Solar Telescope	
Q	Seeing (SIDC, Mount Wilson)	<a href="http://astro.ucla.edu/~obs/150_draw.html">http://astro.ucla.edu/~obs/150_draw.html</a>
R	Wolfnumber (=10.g + f)	<a href="http://en.wikipedia.org/wiki/Wolf_number">http://en.wikipedia.org/wiki/Wolf_number</a>
R	Radio Blackout (level 1-5)	<a href="http://www.swpc.noaa.gov/NOAAscales/#RadioBlackouts">http://www.swpc.noaa.gov/NOAAscales/#RadioBlackouts</a>
RE'	Becknumber	<a href="http://www.digilife.be/club/Franky.Dubois/sol.htm">http://www.digilife.be/club/Franky.Dubois/sol.htm</a>
Rp	Prominence number (=10.H + e)	<a href="http://users.telenet.be/j.janssens/Halpha/Halfaeng.html#Getal">http://users.telenet.be/j.janssens/Halpha/Halfaeng.html#Getal</a>
S	South	
S	Solar Radiation Storm (level 1-5)	<a href="http://www.swpc.noaa.gov/NOAAscales/#SolarRadiationStorms">http://www.swpc.noaa.gov/NOAAscales/#SolarRadiationStorms</a>
SC	Solar Cycle	<a href="http://solarscience.msfc.nasa.gov/SunspotCycle.shtml">http://solarscience.msfc.nasa.gov/SunspotCycle.shtml</a>
SDO	Solar Dynamics Observatory	<a href="http://sdo.gsfc.nasa.gov/data/">http://sdo.gsfc.nasa.gov/data/</a>
SN	Pettisindex	<a href="http://www.digilife.be/club/Franky.Dubois/sol.htm">http://www.digilife.be/club/Franky.Dubois/sol.htm</a>
SIDC	Solar Influences Data analysis Center	<a href="http://sidc.oma.be/">http://sidc.oma.be/</a>
SOHO	Solar and Heliospheric Observatory	<a href="http://sohowww.nascom.nasa.gov/data/realtime-images.html">http://sohowww.nascom.nasa.gov/data/realtime-images.html</a>
StDev	Standard Deviation	<a href="http://en.wikipedia.org/wiki/Standard_deviation">http://en.wikipedia.org/wiki/Standard_deviation</a>
STEREO	Solar TERrestrial RELations Observatory	<a href="http://stereo.gsfc.nasa.gov/">http://stereo.gsfc.nasa.gov/</a>
SWPC	Space Weather Prediction Center	<a href="http://www.swpc.noaa.gov/Data/index.html">http://www.swpc.noaa.gov/Data/index.html</a>
UT	Universal Time	<a href="http://www.timeanddate.com/library/abbreviations/timezones/">http://www.timeanddate.com/library/abbreviations/timezones/</a>
VVS	Vereniging Voor Sterrenkunde	<a href="http://www.vvs.be/">http://www.vvs.be/</a>
W	West	
W	Wedel transparency scale	<a href="http://users.telenet.be/j.janssens/Halpha/Halfaeng.html#Beeld">http://users.telenet.be/j.janssens/Halpha/Halfaeng.html#Beeld</a>
X-flare	Strong X-ray solar flare	<a href="http://spaceweather.com/glossary/flareclasses.html">http://spaceweather.com/glossary/flareclasses.html</a>